National Institute of Environmental Health Sciences

Linkages between human health and ocean health: A participatory climate change vulnerability assessment for marine mammal harvesters

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Abstract:

Background. Indigenous residents of Alaska's Bering Strait Region depend, both culturally and nutritionally, on ice seal and walrus harvests. Currently, climate change and resultant increases in marine industrial development threaten these species and the cultures that depend on them. Objective. To document: (a) local descriptions of the importance of marine mammal hunting; (b) traditional methods for determining if harvested marine mammals are safe to consume; and (c) marine mammal outcomes that would have adverse effects on community health, the perceived causes of these outcomes, strategies for preventing these outcomes and community adaptations to outcomes that cannot be mitigated. Design. Semi-structured interviews and focus groups were conducted with 82 indigenous hunters and elders from the Bering Strait region. Standard qualitative analysis was conducted on interview transcripts, which were coded for both inductive and deductive codes. Responses describing marine mammal food safety and importance are presented using inductively generated categories. Responses describing negative marine mammal outcomes are presented in a vulnerability framework, which links human health outcomes to marine conditions. Results. Project participants perceived that shipping noise and pollution, as well as marine mammal food source depletion by industrial fishing, posed the greatest threats to marine mammal hunting traditions. Proposed adaptations primarily fell into 2 categories: (a) greater tribal influence over marine policy; and (b) documentation of traditional knowledge for local use. This paper presents 1 example of documenting traditional knowledge as an adaptation strategy: traditional methods for determining if marine mammal food is safe to eat. Conclusions. Participant recommendations indicate that 1 strategy to promote rural Alaskan adaptation to climate change is to better incorporate local knowledge and values into decision-making processes. Participant interest in documenting traditional knowledge for local use also indicates that funding agencies could support climate change adaptation by awarding more grants for tribal research that advances local, rather than academic, use of traditional knowledge.

Source: http://www.ncbi.nlm.nih.gov/pubmed/23984268

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Security

Food/Water Security: Other Marine Productivity

Geographic Feature:

resource focuses on specific type of geography

Arctic

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: Indigenous Alaskans

Resource Type:

format or standard characteristic of resource

Research Article

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content